CLAIMS

WHAT IS CLAIMED IS:

1. A high resistance film comprising PEDT/PSS and a cyclic ether co-solvent, having a conductivity less than about 1 x 10^{-5} S/cm.

2. A high resistance film according to Claim 1, having a conductivity less than about 1 x 10^{-6} S/cm.

3. An electroluminescent device comprising an anode, a high resistance buffer layer, an electroluminescent material, and a cathode, wherein said buffer layer comprises PEDT/PSS and a cyclic ether co-solvent and has a conductivity of less than about 1 x 10^{-5} S/cm.

4. An electroluminescent device according to claim 3, wherein said buffer layer has a conductivity of less than about 1 x 10^{-6} S/cm.

5. A method for decreasing the conductivity of a poly(3,4-ethylenedioxythiophene)/poly(styrenesulfonate) layer cast from aqueous solution onto a substrate, said method comprising adding an effective amount of at least one cyclic ether co-solvent to said aqueous solution.

6. A method according to claim 5, wherein said cyclic ether solvent comprises a solvent selected from 1,4-dioxane, tetrahydrofuran, tetrahydropyran, 4 methyl-1,3-dioxane, 4-phenyl-1,3-dioxane, 1,3-dioxolane, 2-methyl-1,3-dioxolane, 1,3-dioxane, 2,5-dimethoxytetrahydrofuran, 2,5-dimethoxy-2,5-dihydrofuran, and combinations of any two or more thereof.

7. A method according to claim 5, wherein said cyclic ether solvent comprises a solvent selected from tetrahydrofuran, tetrahydropyran, and 1,4-dioxane.

8. A method according to claim 5, wherein said cyclic ether solvent comprises 1,4-dioxane.

9. A method according to claim 5, wherein said at least one co-solvent comprises in the range of about 0.5 wt% up to about 70 wt% of the aqueous solution.

10. A method according to claim 9, wherein said at least one co-solvent comprises in the range of about 0.5 wt% up to about 35 wt% of the aqueous solution.

11. A method according to claim 10, wherein said at least one co-solvent comprises in the range of about 0.5 wt% up to about 10 wt% of the aqueous solution.

12. A method according to claim 11, wherein said at least one co-solvent comprises in the range of about 0.5 wt% up to about 2.5 wt% of the aqueous solution.

13. A method according to claim 5, wherein said poly(3,4-ethylenedioxythiophene)/poly(styrenesulfonate) layer is cast onto said substrate by spin-coating, curtain casting, or screen printing.

14. A method according to claim 5, wherein said substrate is indium/tin oxide.

15. A method according to claim 5, wherein said substrate is a polymeric film.

16. A method according to claim 15, wherein said polymeric film is polyaniline.

17. A method for reducing conductivity of a poly(3,4-ethylenedioxythiophene)/poly(styrenesulfonate) layer cast from aqueous solution onto a substrate to a value less than about 1 x 10^{-5} S/cm, said method comprising adding in the range of about 0.5 wt% up to about 2.5 wt% 1,4-dioxane to said aqueous solution.

18. A method for producing a high resistance buffer layer for use in a light emitting diode, said method comprising adding an effective amount of at least one cyclic ether co-solvent to an aqueous solution of poly(3,4-ethylenedioxythiophene)/poly(styrenesulfonate), and casting said solution onto a substrate.

19. A high resistance buffer layer for use in a light emitting diode prepared according to the method of claim 18.

20. A high resistance buffer layer according to claim 18, wherein said layer has a conductivity of less than about 1 x 10^{-5} S/cm.

21. A method for increasing thickness of a poly(3,4-ethylenedioxythiophene)/poly(styrenesulfonate) layer cast from aqueous solution onto a substrate, said method comprising adding an effective amount of at least one cyclic ether co-solvent to said aqueous solution.